

EXHIBIT 24

DECLARATION OF JAMES P. HOLLOWAY

I, James P. Holloway, declare as follows:

1. I am the Provost and Executive Vice President for Academic Affairs at The University of New Mexico (UNM or “the University”) in Albuquerque, New Mexico. I have held that position since July 2019.

2. I have personal knowledge of the contents of this declaration or have knowledge of the matters based on my review of information and records gathered by UNM personnel and could testify thereto.

3. UNM receives substantial annual funding from the National Science Foundation (“NSF”). Currently, UNM has 164 active awards, with funding totaling ~\$124.1 million. Of these, 156 are standard grants (~\$95.2 million) and 8 are cooperative agreements (~\$28.9). UNM’s negotiated indirect cost rate is 52.5% on the modified total direct costs (“MTDC”), which yields ~\$14.7 million in indirect costs. Most of these awards are multi-year awards, with a range of start and end dates. In fiscal year 2024, UNM received ~\$24 million in direct NSF research expenses and \$7.2 million in indirect NSF expenses.

4. UNM intends to apply for new funding awards, and/or renewals and continuations of existing funding awards, in the next year and in future years to come. Indeed, we currently have 112 pending proposals with NSF and have ~45 planned submissions over the next 3 months. The pending proposals represent ~\$77.5 million in direct costs and ~\$23.4 million in indirect costs. All were submitted under requests for proposals (“RFPs”) or notices of funding opportunities (“NOFOs”) that did not contain the 15% indirect cost rate cap; thus, these proposals were submitted with budgets that utilized UNM’s current negotiated rate of 52.5%. The funding UNM receives from NSF supports critical and cutting-edge research vital to our nation’s security and

also often has benefits for American business, both directly and through workforce development. For example, UNM NSF grants generate intellectual property (“IP”) that is essential for creation of new American businesses, as well as maintaining the nation’s technological leadership globally in both the public and private sectors. The state of New Mexico is also home to Los Alamos National Laboratory (“LANL”), Sandia National Laboratory (“SNL”), and the Air Force Research Laboratory (“ARFL”), all of which partner with UNM on a regular basis, utilizing UNM’s research facilities and instrumentation, and generating IP. Millions of Americans benefit from and depend on this research. For example:

- a. The University’s quantum information science and engineering (“QISE”) and materials research has pioneered breakthroughs in this emerging, cutting-edge technology field which promises to revolutionize multiple economic sectors. QIS is now a national priority after the passage of the National Quantum Initiative (“NQI”) whose goals include (i) expanding research & development, education, training, and workforce development; (ii) creating multi-institution research centers; and (iii) meeting the nation’s economic and national security goals. These new technologies will enable America to stay at the forefront of these market sectors. This includes approximately 25 quantum-related technologies protected by UNM and the rate of IP generation is rapidly increasing. These types of technologies offer opportunities for faster, more secure communications, powerful computers, sophisticated sensors, and new materials, potentially boosting economic growth, strengthening national security, and improving health.

- b. The University's research on water and energy security technologies includes development of mechanisms for ensuring access to both clean water and energy resources, including innovative ways to manage water resources and diversifying energy sources, as well as improving energy efficiency and sustainability. These innovations are necessary to protect Americans' security and independence, and are also essential for economic development, especially in the arid southwest.
- c. The University's research in autonomous systems engineering focuses on designing, building, and maintaining systems capable of operating independently for extended periods of time without human intervention. These systems utilize a combination of sensors, AI algorithms, and machine learning to perceive their environment, make decisions, and execute tasks. This work is imperative for America's exploration of space (including travel to Mars) through development of robotics and unmanned vehicles in hostile environments, optimization of transportation systems for commerce, as well as multiple applications for National defense.
- d. The University's world-renowned stable isotope research highlights a multidisciplinary approach to understanding the movement and transformation of elements within complex systems, including geochemistry, planetary sciences, hydrology, oceanography, drug discovery, disease diagnosis, archeology, and ecology. This work supports America's lunar missions and other planetary explorations, understanding and planning for natural disasters (e.g., volcanic eruptions, hurricanes), improving agriculture,

and development of new medications for the treatment of chronic diseases

- e. The University's interdisciplinary materials science and engineering research has revolutionized the development of new semiconductor materials. This research focuses on the co-design of materials, devices and systems to create breakthroughs for shoring up U.S. capabilities in the next generations of the semiconductor industry through a novel neuromorphic integrated circuit employing monolithically integrated carbon nanotube-based transistors. These cutting-edge devices will ensure America's independence in the semiconductor industry.

5. Reimbursement of UNM's indirect costs is essential for supporting this research. NSF's cutting of indirect cost rates to 15% would interrupt and potentially completely preclude carrying out the kinds of research projects described in paragraph 4 in the future.

6. Indirect costs include maintaining state-of-the-art facilities needed to perform this research (e.g., the Center for High Technology Materials, the Center for Micro Engineered Materials, the Center for Stable Isotopes, the Quantum New Mexico Institute, Center for Advanced Research Computing). These facilities include state-of-the art instrumentation needed to meet the current technical requirements of advanced research (e.g., high performance computing, advanced mass spectrometry, materials characterization). Many of these facilities also contain specialized testing environments (e.g., clean room facilities, vibration isolation, high precision temperature control, cryogenically cooled facilities) and laboratory safety systems (e.g., laser safety mechanisms, hazardous waste removal, high flow air handling systems). Without this critical infrastructure, we simply cannot conduct the types of research currently funded by NSF.

7. For example, with respect to the areas of research described in Paragraph 4:

- a. Quantum information science and engineering research requires specialized computer equipment that can handle both the theoretical aspects and the practical implementation of quantum technologies. This means needing both frequent upgrading of classical computer resources and experimental components of quantum computer systems needed for developing and testing multiple architectures for fault tolerance. In addition, specialized software and hardware capable of running simulations of quantum systems and designing quantum algorithms require regular updates. Data storage, analysis and processing of the large amounts of data generated by this type of research is also imperative.
- b. Research on energy and water security requires access to specialized facilities such as stand-alone power grids to explore mechanisms for expanding and strengthening regional power grid interconnections for grid stability and reliability, allowing for better sharing of energy resources and increased resilience to disruptions. Multiple facilities must be built and maintained for testing new water cleaning along with mineral extraction technologies from a broad range of waters sources, given the unique challenges of working with municipal and industrial water sources as well as water from the complex geological environments in New Mexico. These systems allow researchers to test and evaluate the effectiveness of various energy and water management strategies, such as renewable energy sources, water conservation techniques, and disaster recovery plans, in a controlled and isolated environment. This is crucial for understanding how different technologies and strategies can be

optimized to ensure reliable and secure energy and water supply in the face of challenges like grid outages, droughts, and climate change. This research is also essential for regional economic development because uncertainties around water availability is the top concern of industries exploring expansion into the southwest.

- c. Development of autonomous systems requires access to high performance computing systems, similar to those described in 7.a. above. In addition, autonomous systems development also needs access to laboratory spaces that can integrate software development with robotics development. This provides a practical environment to design, develop, and test autonomous systems and allows for real-time feedback and iteration, crucial for verifying algorithms and robot behaviors in a physical setting, ultimately leading to more robust and reliable autonomous systems.
- d. The study of stable isotopes requires space for both commercially available mass spectrometers as well as space for developing new mass spectrometric techniques. These instruments can be quite complex and specialized, with different instruments having specific requirements, depending on the isotopes and systems being studied; these instruments also often require ongoing access to a range of utility needs (e.g., high power) and consumables (e.g. cryogenics such as liquid nitrogen and helium). Many stable isotope research methods require samples to be cooled to extremely low temperatures for precise measurements and the mass spectrometers require substantial electrical power to operate the vacuum systems, ion sources, and detectors. High performance

computing is also needed for data processing, analysis and long-term storage of the large amounts of data that can be generated by this work.

- e. Materials science and engineering research relies heavily on materials characterization equipment, often costing in the millions of dollars for a single instrument. These instruments are also expensive to maintain as they often have maintenance contracts that cost tens of thousands of dollars a year. Moreover, for work on cutting-edge semiconductors, access to a clean room is imperative, as are consumables such as cryogenics (e.g., liquid nitrogen) for both creation and characterization of these revolutionary materials. These facilities needs are critical to minimize contamination and ensure the purity and integrity of materials during fabrication and processing. This is crucial because even minute contaminants can drastically affect the properties and performance of materials, especially at the nanoscale.

8. Multiple areas of research including bioscience and engineering require high-throughput sequencing of genetic material, both naturally occurring and derived synthetically. The instrumentation for these capabilities is expensive and rapidly changing sometimes, requiring bridge-funding for external vendors while capabilities are upgraded. A major limitation arises from having adequate bioinformatics-trained personnel as well as data storage and high-performance computing resources to rapidly analyze sequence data. Inability to analyze data rapidly as it is generated would make the University and the nation non-competitive in these areas. Physical facilities costs are one of the largest components of indirect costs. This includes not only the usual costs of constructing and maintaining buildings where research occurs, but the very high costs of outfitting and maintaining specialized laboratory space, which can require special security,

advanced HVAC systems, and specialized plumbing, electrical systems, and waste management, in addition to specialized laboratory equipment. The features and amount of space available to researchers have a direct and obvious impact on the nature and amount of research that can be done at UNM. For example,

- a. the Center for High Technology Materials (“CHTM”) at UNM performs cutting edge research on novel semiconductor devices, quantum materials, and materials for sensors, communications, and energy grids. CHTM houses a class 100 clean room that is utilized by UNM researchers as well as researchers from National laboratories and from private industry. CHTM relies on indirect costs to cover the operations (e.g., staffing and utilities) and maintenance of the clean room as well as numerous pieces of equipment and instrumentation used for materials development, synthesis, and characterization. Once NSF grants are capped at a 15% rate, CHTM would be forced to operate at a reduced schedule. Some semiconductor growth chambers, used to provide prototype wafers to researchers, the National labs, and a range of device companies, may be shut down entirely.
- b. UNM’s plans to renovate research space for new quantum laboratories and a microscopy facility—both of which support NSF-funded research in quantum information science and semiconductor technologies—will be significantly delayed or stalled under the proposed 15% cap on indirect costs. This will seriously curtail the critical research needed to advance the U.S. economy as well as maintain National security.

9. In addition, indirect costs fund the administration of awards, including staff who ensure compliance with a vast number of regulatory mandates from agencies such as NSF. These mandates serve many important functions, including ensuring research integrity; protecting research subjects; properly managing and disposing of chemical and biological agents and other hazardous materials used in research; managing specialized procurement and security requirements for sensitive research; managing funds; preventing technologies and other sensitive national security information from being inappropriately accessed by foreign adversaries; providing the high level of cybersecurity, data storage, and computing environments mandated for regulated data; ensuring compliance with specialized security protocols and safety standards; maintaining facility accreditation and equipment calibration to meet research quality and security standards; and preventing financial conflicts of interest.

10. Recovery of UNM's indirect costs is based on rates that have been contractually negotiated with the federal government.

11. Through fiscal year 2025, the negotiated indirect cost rate is 52.5% for the on-campus organized research.

12. The effects of a reduction in the indirect cost rate to 15% would be devastating. Of the NSF funding that UNM received in fiscal year 2024, approximately \$24 million consisted of payment of direct costs, \$5.36 million was received under subcontracts (which are not eligible for overhead recovery), and \$ 7.21 million consisted of reimbursement of indirect costs. Similarly, in fiscal year 2025, UNM expects to receive \$23.3 million in NSF funding for direct costs and \$7.0 million in NSF funding for indirect costs. And over the next five years, UNM anticipates receiving an average of \$23 million from the NSF for annual direct costs. Based on the negotiated indirect cost rate of 52.5% on the MTDC, which was agreed upon by the federal government as of March

9, 2022 to become effective July 1, 2022, UNM thus expects to receive approximately \$7 million in indirect cost recovery on an annual basis.

13. If—contrary to what UNM has negotiated with the federal government—the indirect cost rate was reduced to 15% for new awards, that would reduce UNM’s anticipated annual indirect cost recovery by ~\$5.0 million, to ~\$2.0 million.

14. This reduction would have deeply damaging effects on UNM’s ability to conduct research from day one. Many of UNM’s current research projects will be forced to slow down or cease abruptly if we cannot apply for renewals at our negotiated indirect cost rate. This will also necessarily and immediately result in staffing reductions across the board. For example:

- a. UNM would be required to lay off an estimated 10-12 individuals with specialized knowledge within a matter of weeks. This would significantly hamper our ability to continue with critical research projects and in turn jeopardize our ability to contribute to the nation’s security and to build the nation’s economy. Moreover, recruiting staff who have the requisite knowledge, experience, and security clearances to work on such projects is exceedingly difficult. Even if funding were later restored, it would be difficult to find qualified individuals to fill these positions. Ultimately, top scientists and engineers will not move to (or stay at) the University if we cannot provide the facilities necessary to conduct world-class research.
- b. In addition, UNM would be required to lay off an estimated 10-15 staff members who specialize in research development, administration, and compliance. These staff have extensive knowledge, and experience with ensuring the highest level of research integrity, safety, and fiscal responsibility

across all fields of research. Some of these staff directly support the National Security Presidential Memorandum-33 that sets forth requirements for research institutions to implement stronger research security measures, focusing on transparency, cybersecurity, and safeguarding intellectual property. Recruiting these staff members is exceedingly difficult. Even if funding were to be restored later, it would be difficult to find qualified individuals to fill these positions. Ultimately, without the staff necessary to ensure compliance with federal, state, and local laws and regulations, it would be challenging for UNM to continue to conduct research.

- c. Efforts of at least two current administrative staff would have to be redirected from intellectual property development to help cover for losses in section 13b, which will reduce our capacity to file and protect new intellectual property. Since the "first to file" patent rule, enacted through the America Invents Act ("AIA"), replaced the "first to invent" rules, any delay or reduction in the negotiated indirect cost rate would slow UNM's ability to file patents in a timely manner. UNM is ranked #53 on the top 100 US Universities that are granted patents in 2024. Any patent lost due to competitors' submissions or public disclosures would represent irreparable harm to UNM, and if lost to another nation it would represent irreparable harm to the United States of America.

15. UNM has for decades relied on the payment of indirect costs. We have also been able to rely on the well-established process for negotiating indirect cost rates with the government to inform our budgeting and planning. Operating budgets rely on an estimate of both direct and indirect sponsored funding to plan for annual staffing needs (*e.g.*, post-docs, PhD students, and

other research staff), infrastructure support (*e.g.*, IT networks, regulatory compliance, and grant management support), and facility and equipment purchases. And in some cases, UNM has long-term obligations—for example, tenured faculty salaries, Ph.D. students who have already been admitted to our programs based on current levels of funding, and long-term leases on research facilities—and it relies on budgeted grant funding. Loss of indirect cost recovery puts at risk our ability to generate the direct costs that make this long-term support possible. This multi-year budgeting process also assumes the availability or possibility of grant renewals at roughly similar terms – and certainly at the negotiated indirect cost rate – as had been previously available.

16. In addition to the immediate effects and reliance interests described above, dramatically cutting indirect cost reimbursement would have longer-term effects that are both cumulative and cascading. UNM is New Mexico’s flagship University and a Carnegie high research activity (“R1”) University. Disruptions to UNM’s research will also have negative effects in the Albuquerque area, the state of New Mexico, and the broader region. Thousands of New Mexico residents are directly employed by UNM—and it collaborates with state and local partners to help solve regional challenges through joint research and innovation. UNM’s research also fuels spending in the regional economy, including by driving discoveries that launch new ventures, attract private investment, and make a positive social impact. For example, the Center for High Technology Materials, which receives significant funding from NSF has directly contributed to the New Mexico economy by spinning off more than 15 start-up companies that employ a highly qualified STEM workforce. Many of these start-up businesses rely on UNM’s research facilities for their research and development activities. In 2022, New Mexico based startups affiliated with UNM resulted in a total of more than 400 jobs and \$64.2 million in economic output. A massive

reduction in UNM's research budget would immediately and seriously jeopardize these contributions to the local region.

17. Finally, slowdowns or halts in research by UNM and other American universities will allow competitor nations that are maintaining their investments in research to surpass the United States on this front, threatening both our Nation's national security and its economic dominance. UNM's research in quantum information science and nuclear technology directly supports the White House's Office of Science and Technology policy goals to secure United States's position as the unrivaled world leader in critical and emerging technologies and maintaining our advantage over potential adversaries. UNM cannot cover the funding gap itself. The staff positions that manage research compliance, fiscal management, and other oversight of research activities rely on indirect cost recovery. Although UNM maintains an endowment, it is neither feasible nor sustainable for UNM to use endowment funds or other revenue sources to offset shortfalls in indirect cost recovery. The majority of UNM's endowment—around 99.9%—is restricted to specific donor-designated purposes, such as scholarships, faculty chairs, and academic programs.


18. It is also not feasible or sustainable for UNM to use other revenue sources to offset shortfalls in indirect cost recovery. Absorbing the cost of a lower indirect cost rate, even if it were possible, would create long-term budget pressures on UNM—which would in turn force reductions in key investments supporting UNM's faculty, students, staff, research, and teaching infrastructure, as well as other critical activities needed to maintain academic excellence.

19. Cutting back on UNM's research in fields such as quantum information science and engineering, autonomous engineering systems, energy and water security, high technology semiconductor and quantum-based materials, and stable isotope analysis, as well as STEM

education and training will also have long-term implications on national security and the American economy.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 5, 2025.


James P. Holloway